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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,356	06/05/2001	Kazuya Takahashi	109380	4958
25944	7590	11/16/2004		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER CAO, HUEDUNG X	
			ART UNIT 2821	PAPER NUMBER

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/830,356

Applicant(s)

TAKAHASHI, KAZUYA

Examiner

Huedung X Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 06/10/04. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirkland (US 5986669) in view of Kirk et al. (US 6239808 B1).

As per claim 1, Kirkland teaches an image generating system which generates a three dimensional image of an object formed of a polygon, comprising:

means which detect a vertex which is out of a drawable range in a polygon arranged in a three dimensional space (Kirkland, col. 5, lines 21-47) which is subject to coordinate transformation into a screen coordinate system which Kirkland does not explicitly disclose. However, Kirk teaches such coordinate transformation into a screen coordinate system is widely used in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirkland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to

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enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

means which scissors the polygon to generate a new vertex for specifying the scissored polygon (Kirkland, col. 2, lines 34-36); and

means which generates an image of an object formed of the polygon containing the new vertex (Kirkland, col. 5, lines 63-64), wherein detecting a vertex which is out of a drawable range in a polygon is performed prior to scissoring the polygon (Kirkland, col. 5, lines 21-47).

Claim 2 adds into claim 1, wherein a polygon containing a vertex which is out of a drawable range is scissored at a portion containing the vertex in a predetermined plane (Kirkland, col. 2, lines 59-66; and col. 4, lines 58-60).

Claim 3 adds into claim 1, wherein a polygon is scissored in a plane which specifies a viewing angle range (Kirkland, figure 2).

Claim 4 adds into claim 2, wherein a polygon is scissored in a plane which specifies a viewing angle range (Kirkland, figure 2).

Claim 5 adds into claim 1, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7). It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to

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one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Claim 6 adds into claim 2, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7); It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual

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image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Claim 7 adds into claim 3, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7); It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Claim 8 adds into claim 4, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7); It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three

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dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

As per claim 9, Kirkland teaches a computer program embodied on an information storage medium or in carrier wave, comprising a program for implementing:

means which detect a vertex which is out of a drawable range (Kirland, col. 5, lines 21-47) in a polygon arranged in a three dimensional space. It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a

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vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

means which scissors the polygon to generate a new vertex for specifying the scissored polygon (Kirkland, col. 2, lines 34-36); and

means which generates an image of an object formed of the polygon containing the new vertex (Kirkland, col. 5, lines 63-64), wherein detecting a vertex which is out of a drawable range in a polygon is performed prior to scissoring the polygon (Kirkland, col. 5, lines 21-47).

Claim 10 adds into claim 9, wherein a polygon containing a vertex which is out of a drawable range is scissored at a portion containing the vertex (Kirkland, col. 2, lines 59-66; and col. 4, lines 58-60).

Claim 11 adds into claim 9, wherein a polygon is scissored in a plane which specifies a viewing angle range (Kirkland, col. 2, lines 59-66; and col. 4, lines 58-60).

Claim 12 adds into claim 10, wherein a polygon is scissored in a plane which specifies a viewing angle range (Kirkland, figure 2).

Claim 13 adds into claim 9, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7). It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three

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dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Claim 14 adds into claim 10, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7). It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of

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mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Claim 15 adds into claim 11, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7). It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system." However, Kirk teaches such "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system" is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland's system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Claim 16 adds into claim 12, wherein the polygon containing the detected vertex is scissored at a polygon containing the detected vertex (Kirkland, col. 4, line 58-col. 5, line 7). It is noted that Kirkland does not teach "wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate

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system.” However, Kirk teaches such “wherein a polygon arranged in a three dimensional space is subjected to coordinate transformation into a screen coordinate system” is well known in the art (Kirk, col. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of the teaching of Kirk, to configure Kirland’s system as claimed by transforming a three dimensional space into a screen coordinate system in order to define screen position and a depth value z to determine how near a vertex is to the screen and thus whether the vertex is viewed with respect to other points at the same screen coordinate. The purpose of mapping the detected vertex into a screen coordinate system is to enhance the visual image of the scene as viewed from a viewpoint through the viewing window including the screen coordinate.

Response to Arguments

3. Applicant's arguments filed 06/14/04 have been fully considered but they are not persuasive.

Applicant argues that neither Kirkland or Kirk disclose “means which detect a vertex which is out of drawable range in a polygon is performed prior to scissoring the polygon”. However, Examiner disagrees with Applicant, Kirkland does teach means which detect a vertex which is out of drawable range in his method of clipping primitives (column 5, lines 21-47) and Kirk teaches a polygon arranged in a three dimensional space which is subject to coordinate transformation into a screen coordinate system in column 1, lines 24-26. Specifically, Kirkland in column 5, lines 28-30, teaches the trivial

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clipping test prior to the performance of clipping the polygon. The trivial clipping test is the test of whether the polygon, represented by its vertices, is completely outside the clipping window. This test clearly includes "detecting all vertices" which are out of drawable range of the polygon prior to clipping the polygon.

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Inquires

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao
Patent Examiner

